Case Studies on Residential Density

City of Vancouver
PLANNING DEPARTMENT

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WHAT DOES THIS REPORT DO?

This report is a comparative study of medium to high density residential developments. The case studies presented range from 38 units per acre in the False Creek Spruce Neighbourhood to 227 units per acre in the recently completed Anchor Point project on Burrard and Drake Streets. This information was compiled as part of a larger Planning Department effort aimed at reviewing the various development proposals being put forward for lands in the city centre, including the north shore of False Creek, Downtown South and South of Granville Island. We hope this report can assist the public in their understanding of the residential densities proposed.

Residential projects are described technically by using quantitative factors such as floor space ratio, units per acre, site coverage, etc. However, what the building will really be like can only be fully perceived by experiencing the project after it is finished and the new residents have moved in. It is the purpose of this study to narrow the gap between the technical data and the resulting product. This report focusses on existing development, mostly in Vancouver, and relates the numerical values to the actual physical aspect of the buildings.

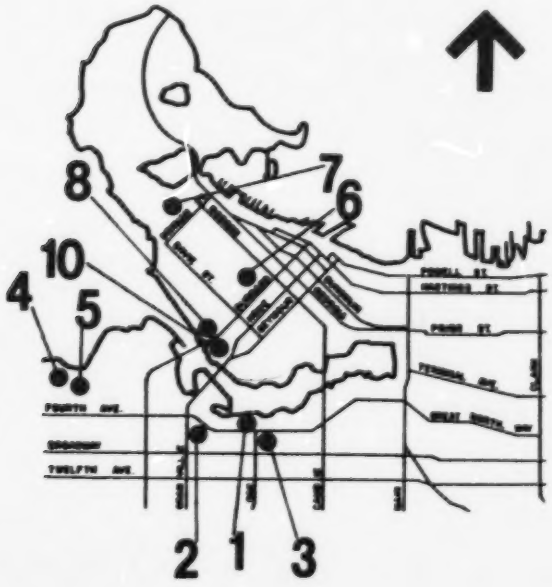
Density figures are normally associated with distinct architectural forms. Single-family homes, townhouses, and apartment blocks are some of the traditional forms. An increase in the number of units per acre on a site (assuming the unit sizes remain unchanged) would require a larger building volume, i.e. the buildings would have to be taller or wider, or both. At times, high densities may result in a building form similar in appearance to a medium density project. On the other hand, one density value can result in a variety of building shapes and heights. That's what this report tries to show.

The land area covered in each of the ten examples is at least equivalent to a city block. This approach allows a better understanding of the impact of each single project, places each development in the context of the surrounding buildings, and gives an appreciation of the meaning of a density value over an extended area.

Case studies were drawn from existing developments in Vancouver and should be familiar to most people. One large residential development in Toronto, the St. Lawrence project, has also been included as an example of a comprehensively planned, large-scale downtown development featuring a mix of unit types and densities.

These factors, however, only deal with one aspect of the whole livability question. The social component is also very important, that is, who are the residents, what are their needs, what sorts of things do they like to do, what are their incomes? These case studies should be seen as only one step in achieving an understanding of the meaningful factors in the definition of housing quality and livability levels.

CASE STUDIES



1. False Creek South, Vancouver: Spruce Neighbourhood
2. Fairview Slopes, Vancouver: 7th, 8th, Hemlock, Birch
3. Fairview Slopes, Vancouver: 7th, 8th, Laurel, Willow
4. Kitsilano, Vancouver: Cornwall, York, Larch, Balsam
5. Kitsilano, Vancouver: 1st, 2nd, Balsam, Vine
6. West End, Vancouver: Barclay, Nelson, Bute, Thurlow
7. West End, Vancouver: Haro, Barclay, Lagoon Drive, Chilco
8. West End, Vancouver: Pacific, Beach, Jervis, Burrard
9. St. Lawrence, Toronto: Phase A1
10. Anchor Point, Vancouver: Drake, Pacific, Burrard, Hornby

HOW TO USE THIS REPORT

The case studies selected are examples of existing developments in the medium to high density range, based on a study area the size of at least one city block. Each case study was analyzed on the basis of three geographical units: the single lot, the block or parcel, and the context or neighbourhood.

Single Lot - Most blocks or parcels consist of smaller lots of various sizes. In some cases, the block was developed as a unit; in others, each lot was developed on its own as a separate project. The adjacent information is presented for each lot and building/s.

- number of storeys
- net unit density
- net floor space ratio

Block (or parcel) - Statistics on individual projects within the block were aggregated to show the relationship between overall numerical data and the general appearance of the street and buildings. The adjacent information is presented for each block or parcel.

- land area by use
- number and type of units
- net unit density
- net floor space ratio
- site coverage
- parking ratio

Context - Location plays a major role in the character of an area. Therefore, some factual information on the general context is included.

- gross population density
- gross unit density
- amenities

These three levels of statistical data should be kept in mind when making numerical comparisons between these and any other examples. The ten case studies have been organized according to increasing unit density, as expressed in units per acre. The only exception is the St. Lawrence project, which appears adjacent to the case study on the 3-block parcel in Vancouver's West End due to their similar land area.

DEFINITIONS

AMENITIES are those positive physical features located near each block or blocks.

FLOOR SPACE RATIO (FSR) means the figure obtained when the area of the floors of the buildings on a site is divided by the area of the site, which excludes lane and road allowances.

PARCEL SIZE refers to the size of the study block or blocks and includes internal roads and lanes except where otherwise noted.

PARKING RATIO refers to the number of off-street parking spaces.

POPULATION DENSITY is the estimated number of persons per gross acre, primarily derived from census tract data.

SINGLE FAMILY DWELLING (SFD) refers to any building which has the appearance of having been built to house one family. A dwelling which has been converted to more than one unit was treated as a single family dwelling.

SITE COVERAGE is the percentage of the block or blocks covered by built area. Where possible, development permit data were used. Otherwise, site coverage was estimated from the building footprint shown on land use maps.

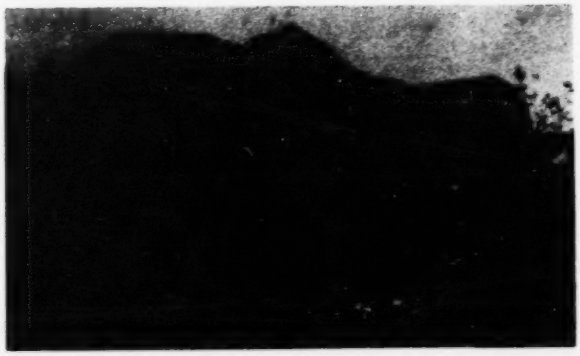
STOREYS means the number of floors in the building above grade.

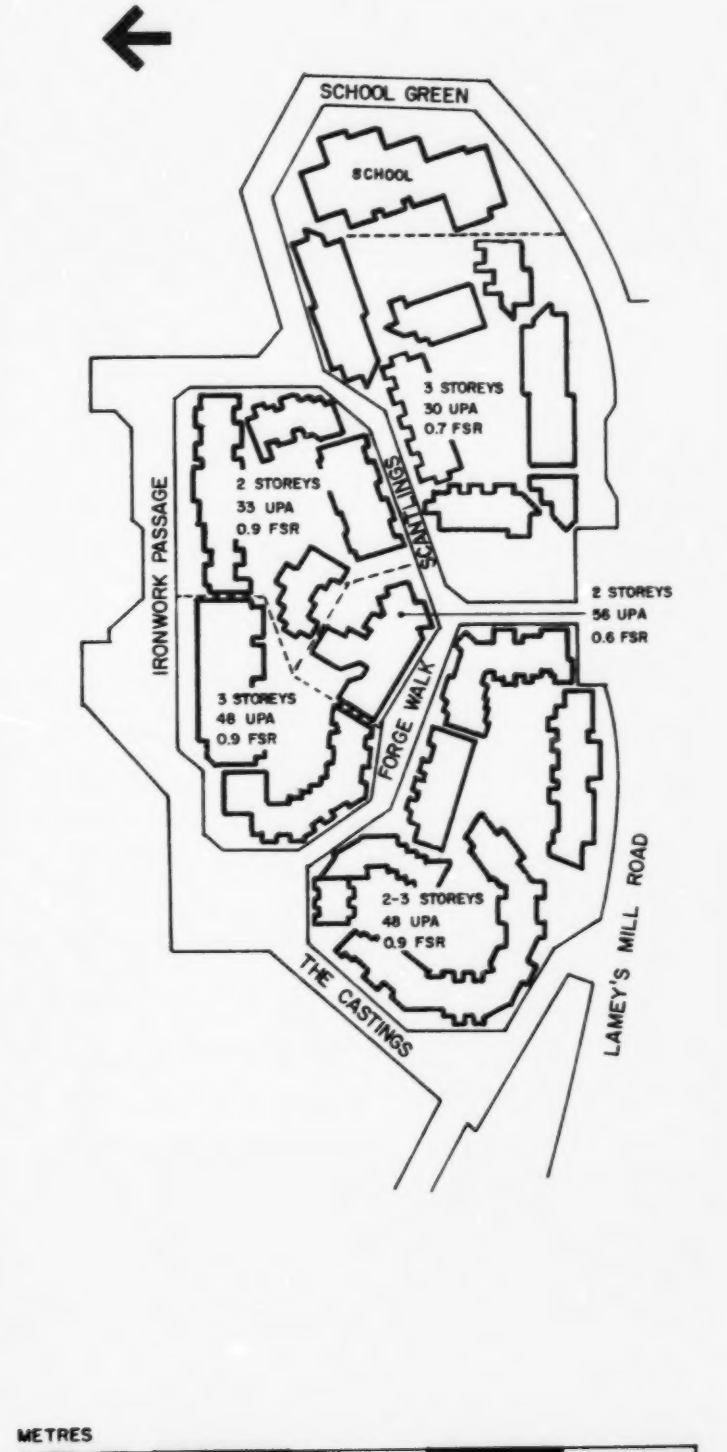
UNIT DENSITY is a measure of density using the number of dwelling UNITS PER ACRE (UPA). Both units per gross acre and units per net acre are used in this report. Census tract data were generally used to determine the number of units per gross acre. The number of units per net acre is the actual number of units in the study block or blocks divided by the net site area (expressed in acres), which excludes lane and road allowances, and non-residential parcels.

FALSE CREEK SOUTH, VANCOUVER: *Spruce Neighbourhood*

PARCEL SIZE	9.8 acres (Excludes Internal Roads)
Residential	8.6 acres
School Site	0.9 acres
Open Square	0.3 acres
NUMBER OF UNITS	323
Townhouses	299
Suites for Handicapped	24
PERSONS PER ACRE (GROSS)	39
UNITS PER ACRE (GROSS/NET)	23/38
FLOOR SPACE RATIO (NET)	0.8
SITE COVERAGE	28%
PARKING RATIO	0.8 per unit
AMENITIES	

- two residential projects include a children's play-ground area
- development abuts an elementary school, playfield, Charleson Park and the waterfront





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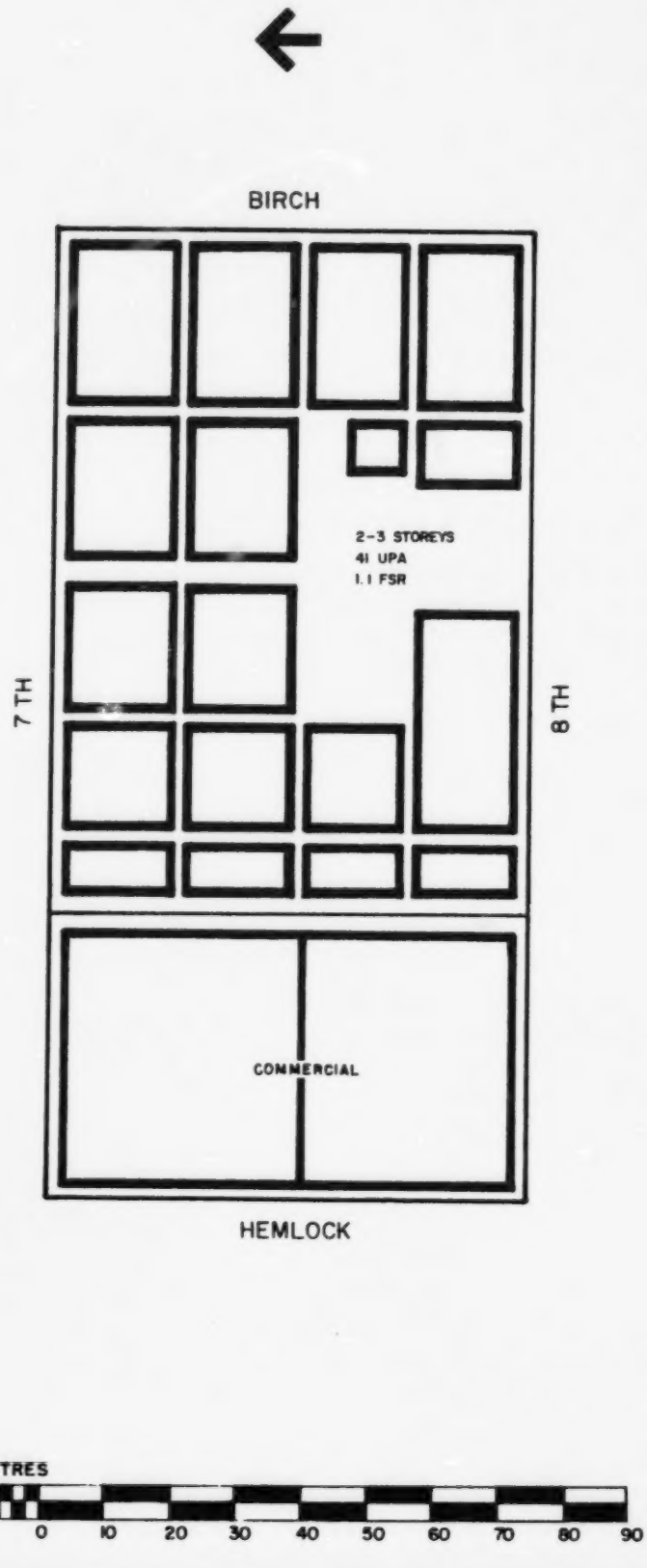
FAIRVIEW SLOPES, VANCOUVER: *7th, 8th, Hemlock, Birch*

PARCEL SIZE	2.8 acres
Residential	1.9 acres
Commercial	0.9 acres
NUMBER OF UNITS	78
All Townhouses	
PERSONS PER ACRE (GROSS)	42
UNITS PER ACRE (GROSS/NET)	20/41
FLOOR SPACE RATIO (NET)	1.1
SITE COVERAGE	73%
PARKING RATIO	1.5 per unit

AMENITIES

- open space on site strictly for circulation
- playground and seating area in Choklit Park two blocks east on Seventh Avenue
- overpass to False Creek South and Charleson Park four blocks east on Seventh Avenue

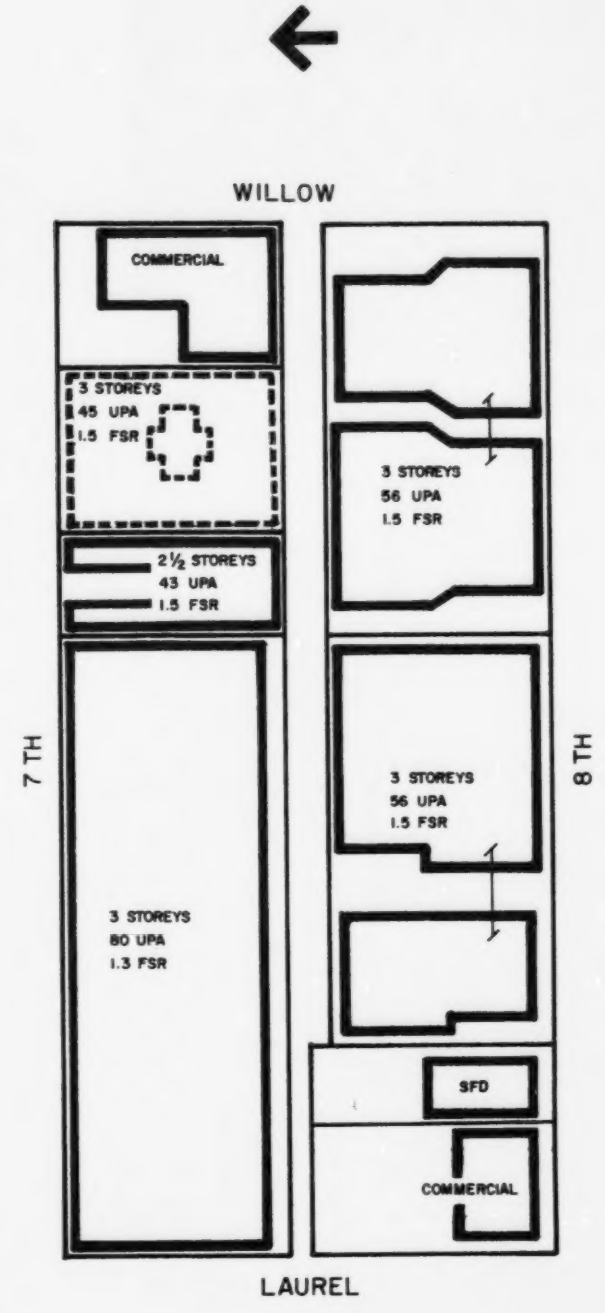


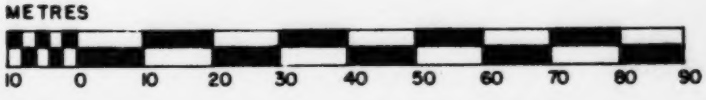
FAIRVIEW SLOPES, VANCOUVER: *7th, 8th, Laurel, Willow*

PARCEL SIZE	2.8 acres
Residential	2.2
Circulation (lane)	0.2
Commercial	0.4
NUMBER OF UNITS	143
Apartments	42
Townhouses	100
Single Family Dwelling	1
PERSONS PER ACRE (GROSS)	42
UNITS PER ACRE (GROSS/NET)	20/65
FLOOR SPACE RATIO (NET)	1.5
SITE COVERAGE	67%
PARKING RATIO	>1 per unit

AMENITIES

- small plaza on northwest corner of Seventh Avenue and Laurel Street, directly across from the study site, connects to pedestrian overpass to False Creek South area and Charleson Park.





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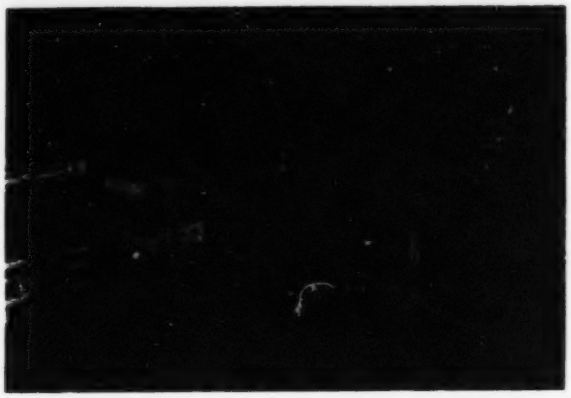
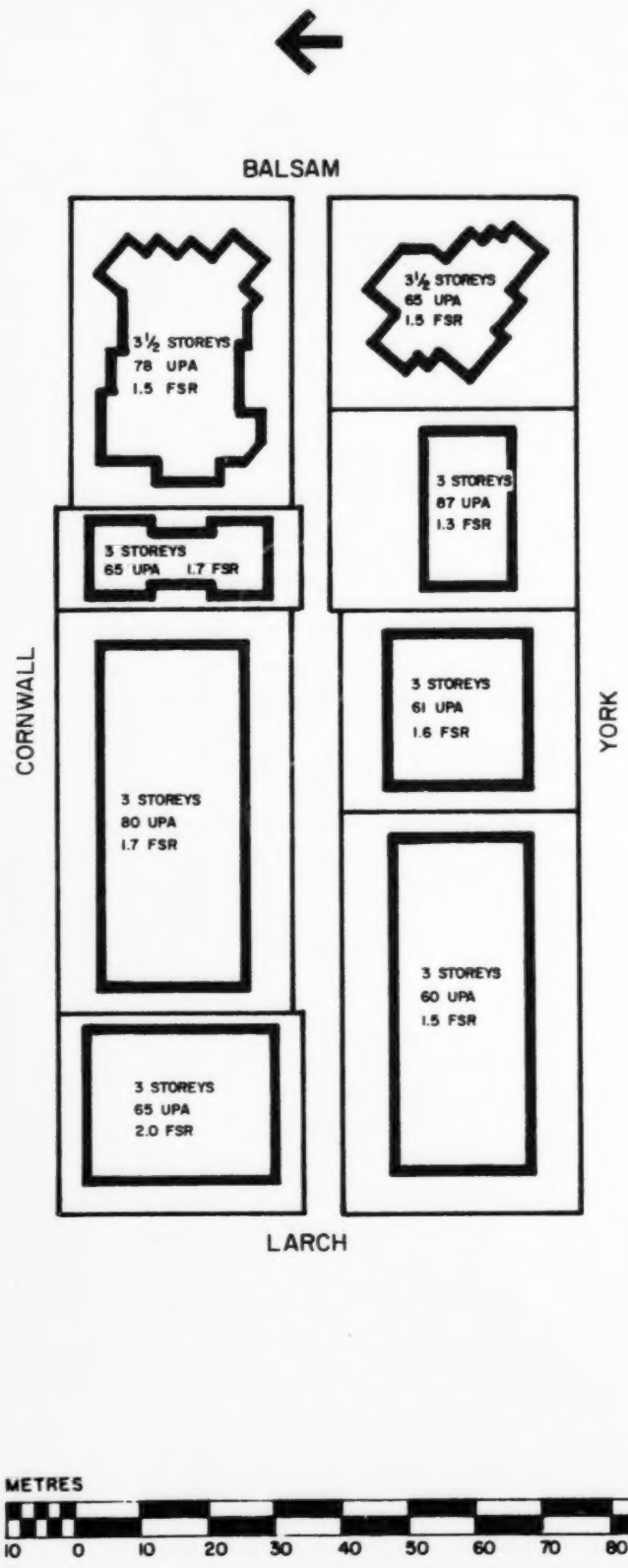
KITSILANO, VANCOUVER: *Cornwall, York, Larch, Balsam*

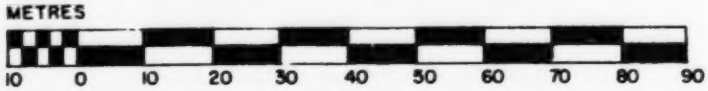


PARCEL SIZE	3.0 acres
Residential	2.8
Circulation (lane)	0.2
NUMBER OF UNITS	195
All Apartments	
PERSONS PER ACRE (GROSS)	42
UNITS PER ACRE (GROSS/NET)	28/70
FLOOR SPACE RATIO (NET)	1.6
SITE COVERAGE	47%
PARKING RATIO (new bldg/old bldg)	>1 /<1 per unit

AMENITIES

- directly facing Kitsilano Beach, Park and Pool



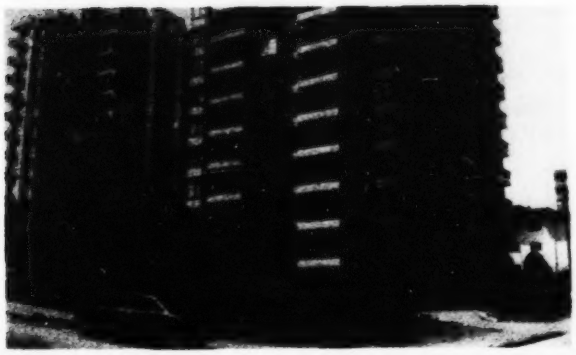


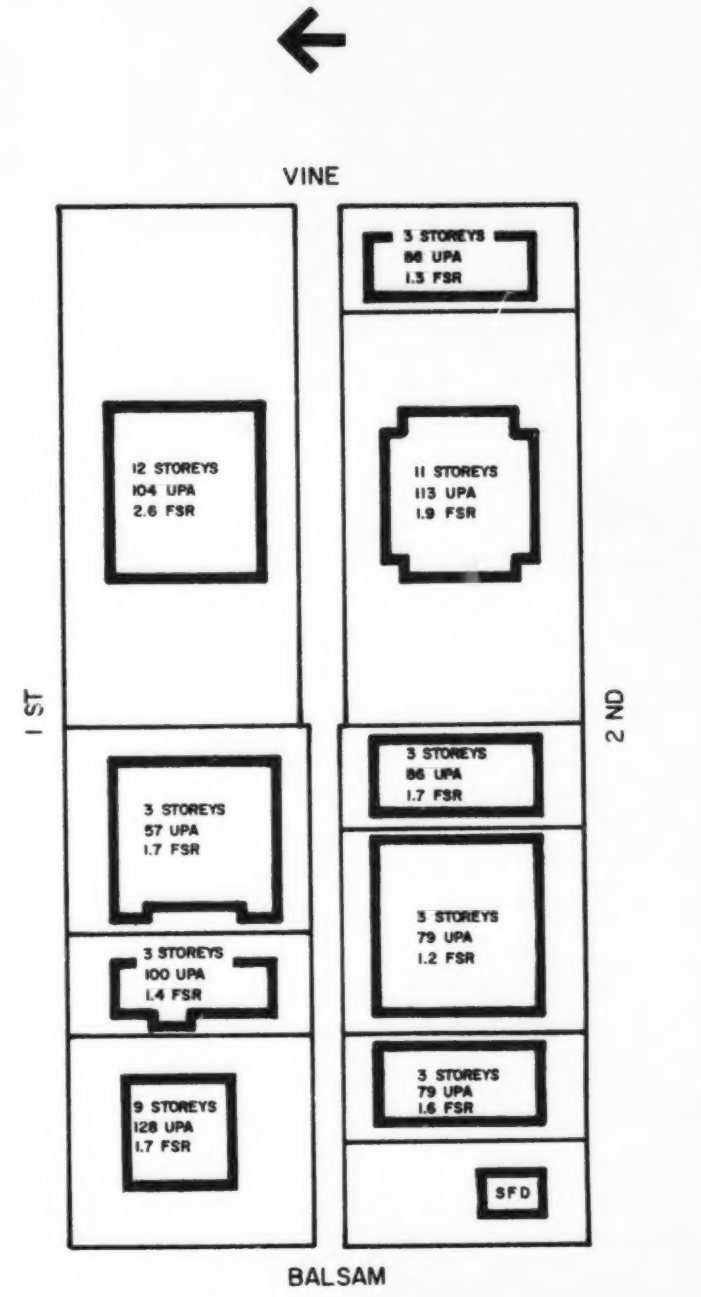
KITSILANO, VANCOUVER: *1st, 2nd, Balsam, Vine*

PARCEL SIZE	3.0 acres
Residential	2.8 acres
Circulation (lane)	0.2 acres
NUMBER OF UNITS	258
Apartments	257
Single Family Dwelling	1
PERSONS PER ACRE (GROSS)	42
UNITS PER ACRE (GROSS/NET)	28/92
FLOOR SPACE RATIO (NET)	1.9
SITE COVERAGE	26%
PARKING RATIO (new bldg/old bldg)	⟩1/⟨1 per unit

AMENITIES

- outdoor swimming pool in one development
- study area located two blocks from Kitsilano Beach, Park and Pool





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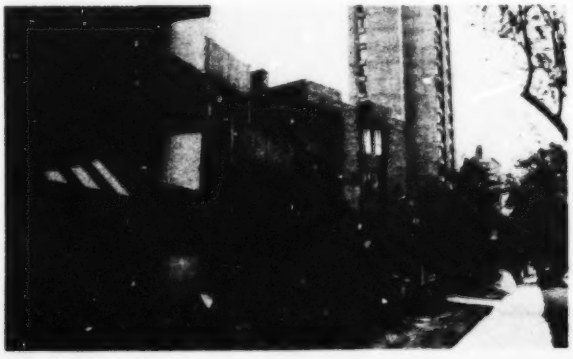
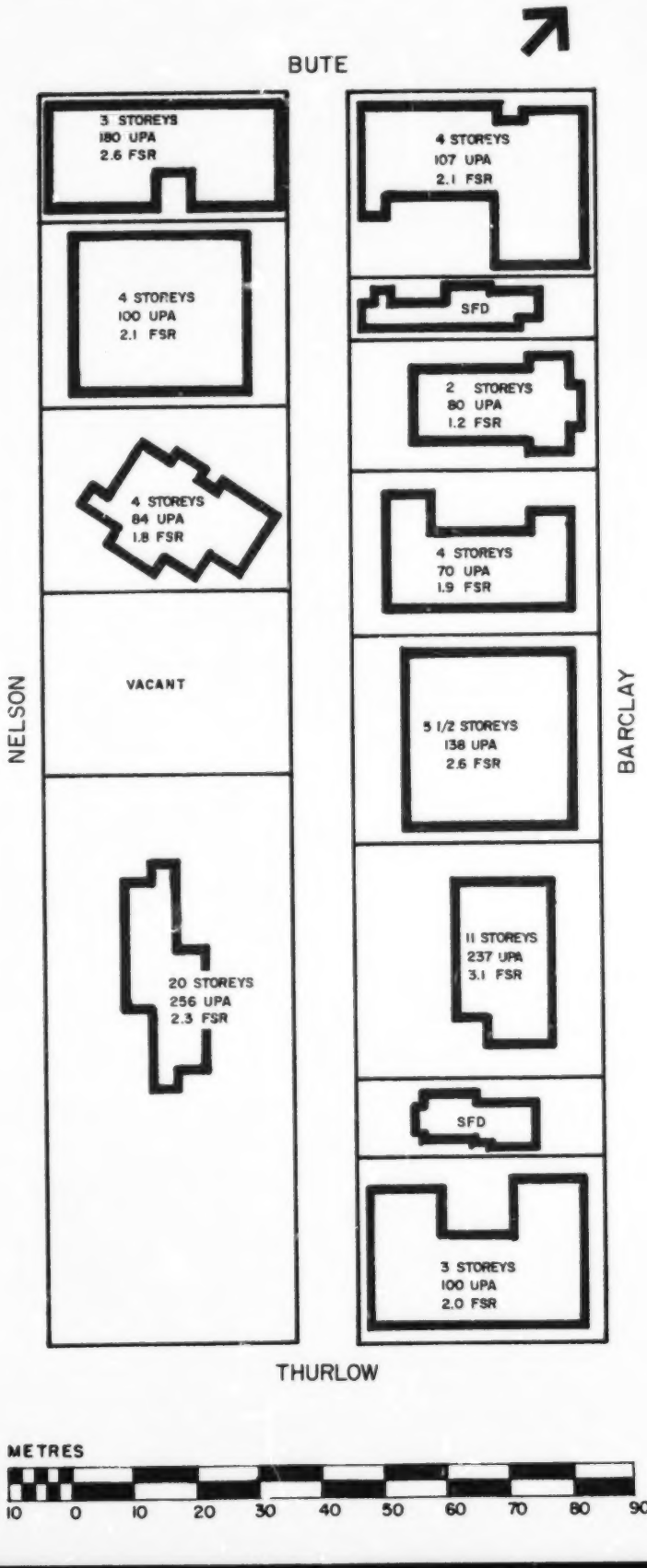
WEST END, VANCOUVER: *Barclay, Nelson, Bute, Thurlow*

PARCEL SIZE	4.5 acres
Residential	4.0 acres
Circulation (lane)	0.5 acres
NUMBER OF UNITS	554
Apartments	322
Seniors	230
Single Family Dwellings	2
PERSONS PER ACRE (GROSS)	99
UNITS PER ACRE (GROSS/NET)	68/139
FLOOR SPACE RATIO (NET)	2.2
SITE COVERAGE	36%
PARKING RATIO	< 1 per unit

AMENITIES

- senior citizen site has landscaped plaza for seating, games
- Nelson Park and school immediately adjacent on Nelson Street

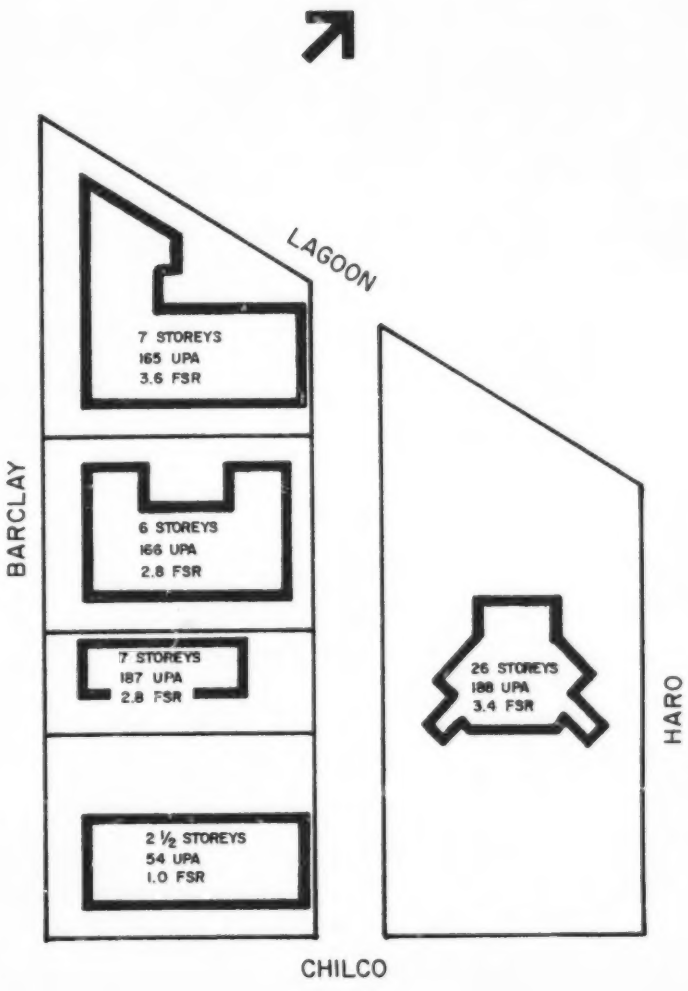




WEST END, VANCOUVER: *Haro, Barclay, Lagoon Drive, Chilco*

PARCEL SIZE	2.1 acres
Residential	1.9 acres
Circulation (lane)	0.2 acres
NUMBER OF UNITS	298
All Apartments	
PERSONS PER ACRE (GROSS)	99
UNITS PER ACRE (GROSS/NET)	68/157
FLOOR SPACE RATIO (NET)	2.9
SITE COVERAGE	28%
PARKING RATIO	< 1 per unit
AMENITIES	

- immediately adjacent to Stanley Park and park facilities



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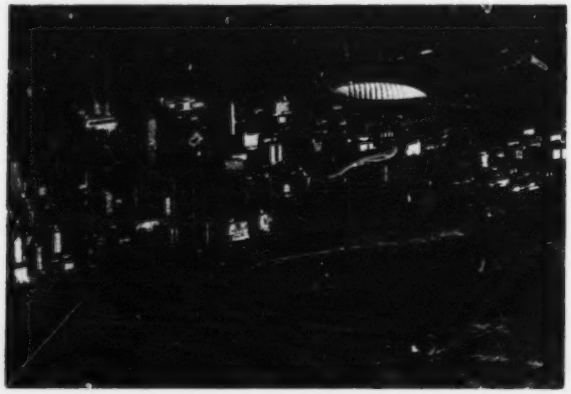
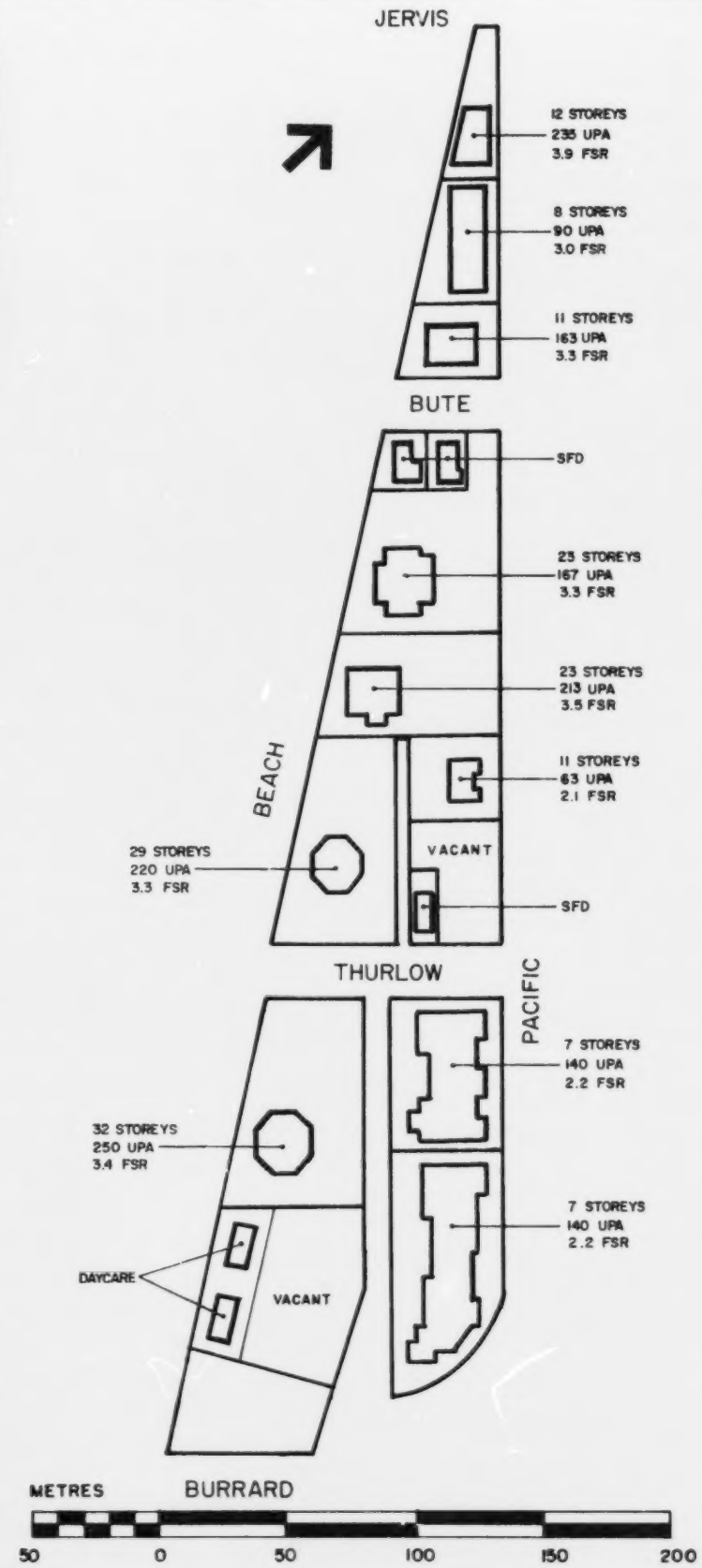
WEST END, VANCOUVER: *Pacific, Beach, Jervis, Burrard*



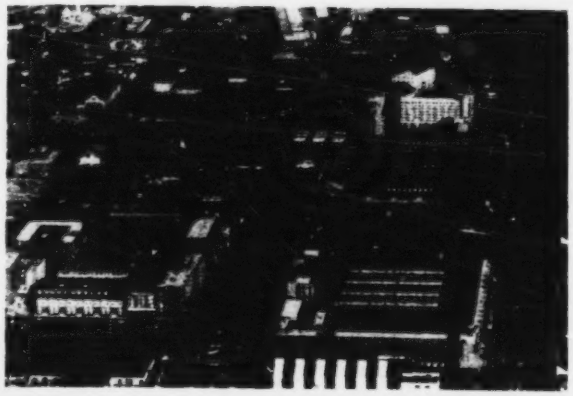
PARCEL SIZE	8.7 acres
Residential	6.5 acres
Daycare	0.3 acres
Circulation and Parking	1.9 acres
NUMBER OF UNITS	1046
Apartments	1043
Single Family Dwellings	3
PERSONS PER ACRE (GROSS)	80
UNITS PER ACRE (GROSS/NET)	68/161
FLOOR SPACE RATIO (NET)	2.9
SITE COVERAGE	19%
PARKING RATIO	⟨1 per unit

AMENITIES

- across from Sunset Beach, Park and Aquatic Centre
  some buildings have amenity space as part of the development (swimming pool, sauna, etc.)

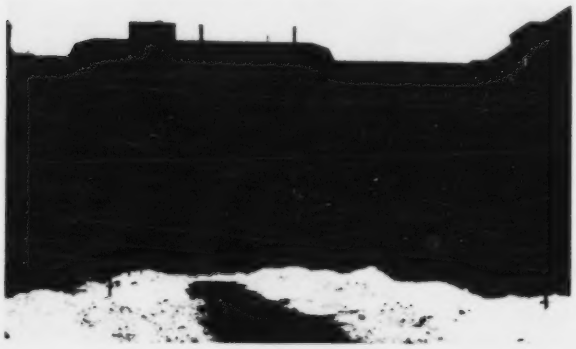


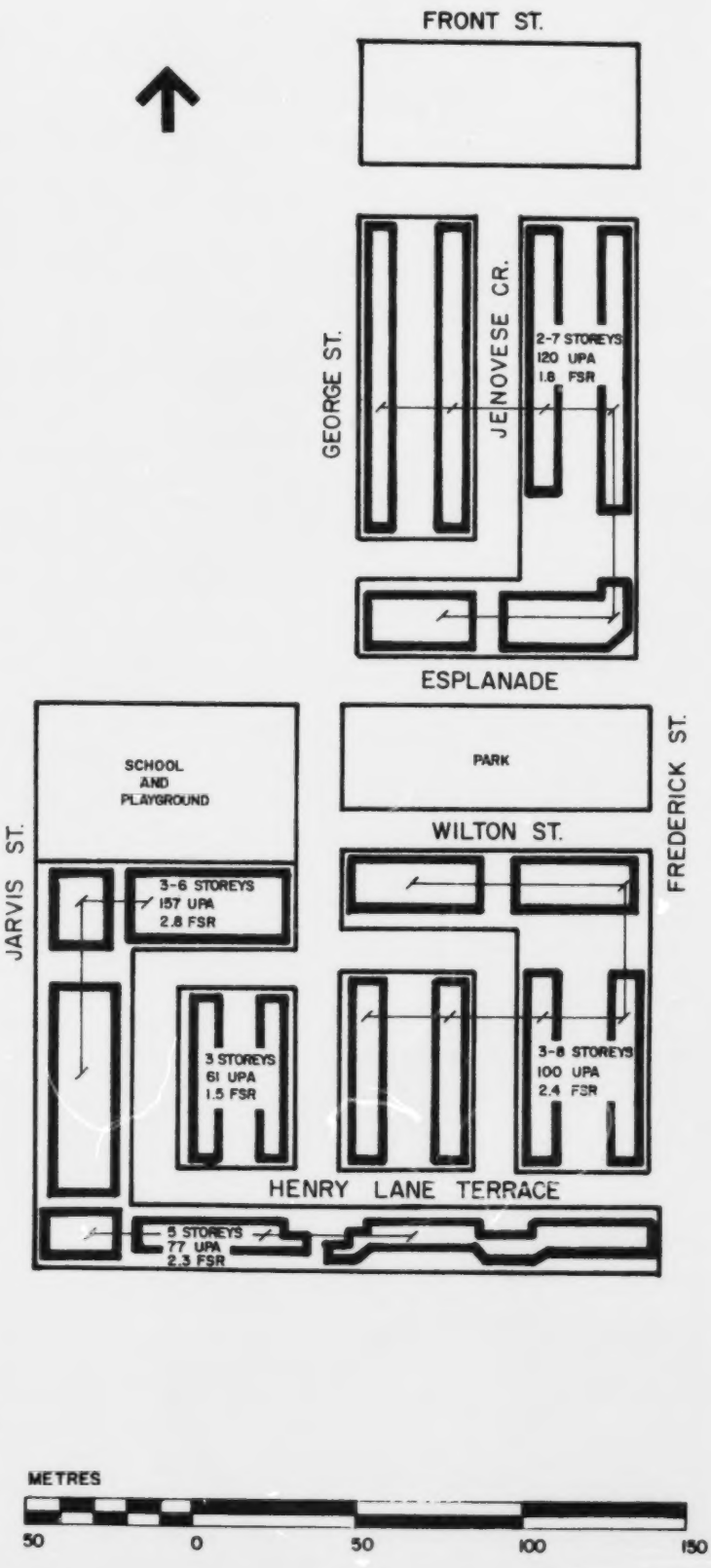
ST. LAWRENCE, TORONTO: *Phase A1*



PARCEL SIZE	10.8 acres
Residential	6.5 acres
Park	2.5 acres
Circulation	1.8 acres
School, Retail and Facilities in Mixed Use Developments	
NUMBER OF UNITS	680
Apartments	510
Townhouses	170
PERSONS PER ACRE (GROSS)	167
UNITS PER ACRE (GROSS/NET)	83/105
FLOOR SPACE RATIO (NET)	2.2
SITE COVERAGE	61%
PARKING RATIO	0.5 per unit
AMENITIES	2.5 acres

- two schools
- 2.9 acres of parkland and schoolyard
- daycare, health clinic, commercial and recreational facilities





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ANCHOR POINT, VANCOUVER: *Drake, Pacific, Burrard, Hornby*

PARCEL SIZE	2.7 acres
Residential	2.0 acres
Commercial	0.7 acres
NUMBER OF UNITS	454
All Apartments	
PERSONS PER ACRE (NET)	305
UNITS PER ACRE (GROSS/NET)	116/227
FLOOR SPACE RATIO (NET)	3.6
SITE COVERAGE	48%
PARKING RATIO	1.5 per unit

AMENITIES

- central courtyard in residential portion
- three blocks from Aquatic Centre and Sunset Beach
- four blocks from downtown YMCA